

## **REMARKS**

Claims 1, 3, 4, 6, 10, 11, 12, 18, 19, 22, 24, and 25 have been amended. Claims 1, 19, 22, and 25 were amended to recite that the invention can detect deflection in the string of the magnetometer along multiple axes. Support can be found in the specification, page 3, lines 9-10, and page 5, lines 23-24. Claims 3, 4, 6, 11, 22, and 25 were amended to obviate the Examiner's indefiniteness rejections under 35 USC 112, second paragraph; support therefor is obvious. Claims 6 and 10 were amended to obviate the Examiner's 35 USC 112, first paragraph enablement rejection; support is found on page 4, lines 31-32 and page 5, lines 1-2. Claims 12, 18, and 24 were amended to correct the spelling of aperture.

Claims 1-25 remain in the application.

## **OBJECTION TO DISCLOSURE**

The Examiner has objected to the disclosure because of various informalities.

Applicant has amended pages 3, 8, and 9 of the specification and claims 12, 18, and 24 to correct typographical errors thus obviating this objection.

## **112 REJECTIONS**

a. The Examiner has rejected claims 1-24 under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The Examiner states that with respect to claims 1, 19, and 22 it is not clear from the specification how the term "string" shown in 10 in Fig. 1, is defined and what its dimensions are, including the single mode optical fiber 26 and gold thin film 28 shown in Fig. 4.

The specification, page 5, lines 12-13, describes the string as "a conducting wire or an insulating fiber covered with a metal or other electrically conducting material" and, as the Examiner notes, Fig. 4 and the specification (page 9, lines 6-14) illustrates/describes the embodiment describing the fiber optic cable with a thin conducting layer. Applicant's claims are

directed broadly to the magnetometer of the invention. Once Applicant's invention is disclosed, the implementation details such as dimensions are within the capabilities of one with ordinary skill in the art as evidenced by Arunkumar, the reference cited by the Examiner.

The Examiner states that with respect to claims 6 and 10, it is not clear from the description of the embodiment of Fig. 3, beginning at page 4, line 31, how the plural strings or fibers constitute the means for varying tension or, from Fig. 3, what the structural, multi-dimensional form of the substrate is, and how the strings are placed thereon.

Claims 6 and 10 have been amended to delete the means for varying the tension and to recite that switching between strings of different lengths permits rapid changes in the resonant frequency of the device. Applicant submits that structural details of the substrate and placement of the strings thereon are within the capabilities of one of ordinary skill in the art.

The Examiner states with respect to claim 7 that it is not clear where the claimed magnetometer is shown or described.

The embodiment of the invention claimed in claim 7 is described on page 6, lines 15-30 and page 7, lines 1-20, with specific discussion on page 7, lines 13-20. Again, the implementation details of this embodiment are within the capabilities of one with ordinary skill in the art.

Based on the above, Applicant submits that claims 1-24 meet the enablement requirement of 35 USC 112, first paragraph.

b. The Examiner has rejected claims 3-18 and 22-25 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Examiner takes issue with claims 3, 4/1, 11, 22, and 25.

Applicant has amended each claim appropriately (see annotated amendments), thus, Applicant submits, obviating these rejections.

### **102 REJECTION**

The Examiner has rejected claims 1-3, 11, 19, 20, 22, and 25 under 35 USC 102(b) as being anticipated by Arunkumar.

Applicant has amended claims 1, 19, 22, and 25 to recite that the string is capable of vibrating in any direction orthogonal to its axis and, therefore, the invention can detect deflection in the string of the magnetometer along multiple axes when the magnetometer is placed in the

magnetic field to be detected. Arunkumar, the reference cited by the Examiner, discloses a sensor with a mechanical stopper disposed on one side of the fiber to preclude bowing of the fiber in one direction (col. 3, lines 34-36). A phase change measurement can be made (and the magnetic field detected) only when the fiber bows away from the stopper (col. 3, lines 64-66). Therefore, not only does Arunkumar not disclose the ability to detect deflection along multiple axes, it, in fact, teaches away from that and, therefore, Arunkumar does not anticipate nor does it render obvious claims 1, 19, 22, and 25 as amended, or claims 2, 3, 11, and 20 which depend therefrom.

### **103 REJECTION**

The Examiner has rejected claims 4, 5, 21, and 23 under 35 USC 103(a) as being unpatentable over Arunkumar.

Applicant's invention includes the capability of easily, rapidly, and dynamically changing the tension of the string or fiber and, hence, the resonant frequency thereof to reach the fundamental resonance of the string or fiber. This greatly increases response while the minimum detectable field decreases.

The reference cited by the Examiner (Arunkumar) does not disclose resonant enhancement of the response through varying the string or fiber tension at all and Arunkumar's apparatus is not set up to accomplish such enhancement. Therefore, Applicant submits that Arunkumar cannot render obvious claims 4, 5, 21, and 23.

## CONCLUSION

In view of the above, Applicant submit that each of the presently pending claims in this application is in immediate condition for allowance. Reconsideration and withdrawal of the rejections are requested. Allowance of claims 1-25 at an early date is solicited.

Respectfully submitted,

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Enclosure:

1. Clean version specification
2. Clean version claims